

Notice of Allowability

Application No.

10/045,925

Examiner

Lewis A. Bullock, Jr.

Applicant(s)

BERG ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to response filed September 13, 2005.
2. ☒ The allowed claim(s) is/are 1,3-9,11,13,14,16-18 and 20-23.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

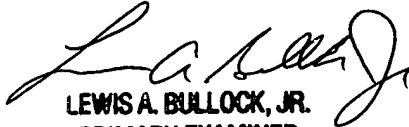
Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____


LEWIS A. BULLOCK, JR.
PRIMARY EXAMINER

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Michael Dryja on November 23, 2005.

The application has been amended as follows:

The claims are amended to correct proper 35 U.S.C. 112, 6th paragraph "means for" language and antecedent basis issues.

Claim 20 (Amended) In a multiprocessor computer system comprising a plurality of processing nodes; a shared, distributed system memory; and a central hardware device comprising a communications pathway connecting said processing nodes; wherein each one of said processing nodes includes at least one processor; and a portion of said shared system memory coupled to said processor and said communication pathway; said communications pathway comprised of communications ports each dedicated to communicating with one of said processing nodes wherein said communications pathway is separate from and interconnects said processing nodes and is further comprised of a tag and address crossbar to communicate tag and address information, and a data crossbar means [to communicate] for communicating

data within the system; a method for handling tagging and addressing within the system comprising the steps of:

- a first node communicating to said tag and address crossbar, a request for a transaction in the system;

- allocating a transaction identifier in the tag and address crossbar for use by the identified transaction;

- conveying said transaction identifier to [the] an originating node;

- attaching said transaction identifier to [the] said transaction; and

- communicating said transaction from the first node to the originating node which receives the transaction directly through said data crossbar means.

Claim 22 (Amended) In a multiprocessor computer system capable of being partitioned into one or more independently functioning processing systems comprising:

- a plurality of processing nodes, each node capable of operating independently;

- a shared, distributed system memory;

- and a communications pathway which interconnects said plurality of processing nodes;

- wherein each one of said processing nodes includes at least one processor and a portion of said shared system memory coupled to said processor and said communication pathway, and said communication pathway is comprised of a central crossbar including tag and address means [to communicate] for communicating the identification of data transactions being processed through the system connected to

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said plurality of processing nodes, said tag and address means including means [to store] for storing information related to the identification of data including the target location for said data; and means [to define to] for defining which memory location in one or more of said nodes, said data should be sent; the central crossbar interconnecting the nodes and is separate from the nodes;

a method for handling a request from a requestor node of the system to a target node of the system comprising the steps of:

- the requestor node sending a request to the central crossbar;
- the central crossbar allocating a resource to receive results of the request at the target node;
- the central crossbar assigning an identifier to the request;
- the requestor sending the results to the target node; and
- the target node receiving the results directly into the resource without intermediate buffering of the results at the target node.

Amend the specification, as detailed and indicated in the response filed September 13, 2005 to correct the status of co-pending applications.

Page 1,

- Line 1, Add “, U.S. Patent 6,523,362,” **after** “Berg et al.”
- Line 4, Add “, U.S. Patent 6,973,544,” **after** “Berg et al.”
- Line 8, Add “, U.S. Patent 6,785,779,” **after** “Berg et al.”
- Line 12, Add “, still pending,” **after** “Lloyd et al.”

- Line 15, Add “, U.S. Patent 6,795,889,” **after** “Berg et al.”
- Line 18, Add “, U.S. Patent 6,910,108,” **after** “Downer et al.”

Page 2,

- Line 1, Add “, still pending,” **after** “Berg et al.”
- Line 4, Add “, U.S. Patent 6,823,498,” **after** “Downer et al.”
- Line 7, Add “, U.S. Patent 6,934,835,” **after** “Downer et al.”
- Line 10, Add “, U.S. Patent 6,938,077,” **after** “Downer et al.”

2. The following is an examiner's statement of reasons for allowance: The claims are allowable for at least the following reasons: All of the claims detail a central crossbar or a communications pathway having a crossbar(s) comprising a resource allocator that is capable of allocating resources of a target node to a requestor node. None of the prior art of record, either newly or previously cited, detail the crossbar having a resource allocator or performing a resource allocating function to a target node's resources. The prior art of record at best teaches nodes using a crossbar for accessing or using resources of a target node wherein the target nodes controls the access of its resources. The prior art of record does not allude to the crossbar performing the controlling of the resources as detailed in the claims. Therefore, the claims are allowable over the cited prior art of record.


Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lewis A. Bullock, Jr. whose telephone number is (571) 272-3759. The examiner can normally be reached on Monday-Friday, 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

November 28, 2005


LEWIS A. BULLOCK, JR.
PRIMARY EXAMINER